

0074014



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

07-AMCP-0279

SEP 27 2007

Mr. M. A. Bussell, Director
Office of Enforcement and Compliance
U.S. Environmental Protection Agency, Region 10
1200 Sixth Avenue
Seattle, Washington 98101

Dear Mr. Bussell:

TOXIC SUBSTANCES CONTROL ACT (TSCA) NOTIFICATION OF SELF-IMPLEMENTING DISPOSAL OF BACKLOG SOIL POLYCHLORINATED BIPHENYL REMEDIATION WASTE AT HANFORD

- References: (1) EPA ltr. to D. A. Brockman, RL, from M. A. Bussell, "Notification of Self-Implementing Disposal of Backlog Soil Polychlorinated Biphenyl (PCB) Remediation Waste at Hanford," dtd. August 2, 2007.
- (2) RL ltr. to E. D. Miller, EPA, from M. J. Weis, "Toxic Substances Control Act (TSCA) Notification of Self-Implementing Disposal of the Backlog Soil Polychlorinated Biphenyl (PCB) Remediation Waste at Hanford," 07-SED-0304, dtd. July 2, 2007. 073159

The purpose of this letter is to respond to the August 2, 2007, request for additional information concerning the notification of self-implementing disposal of the backlog soil Polychlorinated Biphenyl (PCB) remediation waste at Hanford.

The U.S. Department of Energy, Richland Operations Office's (RL) responses to each request are enclosed. RL plans to proceed with disposal of the bulk PCB remediation waste as described in the original notification if we have not been notified of any continuing concerns by November 1, 2007.

If you have any questions, please contact me, or your staff may contact Matt McCormick, Assistant Manager for the Central Plateau, on (509) 373-9971.

Sincerely,

RECEIVED
OCT 02 2007

David A. Brockman
David A. Brockman
Manager

AMCP:GLS

EDMC

Enclosure

cc: See Page 2

**U.S. DEPARTMENT OF ENERGY RESPONSE TO
U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
AUGUST 2, 2007, REQUEST FOR ADDITIONAL INFORMATION
CONCERNING TANK FARM BACKLOG SOILS**

Requests for information #1:

The particular tank farm(s) from which the soil/gravel in question was generated, location (including depth) from which the soils were generated, and any information that may be available as to the source of the contamination found in the soils, specifically whether contamination in the soils was the result of spills or releases of tank waste or from some other source of contamination. This information will help EPA better understand the regulatory status of the wastes, and the characterization information provided in the notification.

Response:

The tank farm of generation for each container of Backlog soil was identified using waste records. Table 1 below lists the number of drums that were generated from each farm. For any container, the actual location in the farm where the soil was generated is not recorded. However, the soil collected would have been on or near the surface (within several feet) based on the operations taking place in the farms at the time.

The bulk of the Backlog soil waste was generated as a result of radioactive contamination control activities in the farms where contaminated soils were identified by radiological surveys then collected and placed in drums for eventual disposal as waste. These contamination control activities were typically due to either contamination found during routine surveillances or surveys associated with a particular job such as a maintenance activity. The soil waste may also include small quantities of soils collected as a result of cleaning up spills or releases of Hanford tank waste or other chemicals in the farms; however, the records do not identify such spills.

Table 1. List of Tank Farm of Backlog Soil Generation

Number of Drums	Tank Farm of Generation	Number of Drums	Tank Farm of Generation
78	B Farm	135	T Farm
27	C Farm	21	TX/TY Farm
5	S Farm		

Note: The number of drums listed includes those drums packaged in five boxes, therefore the number of drums will be more than the 226 drums identified as containing Backlog soil.

Requests for information #2:

Any determination the U.S. Department of Energy may have made regarding the regulatory classification or reclassification of the radionuclide component of wastes which may have contributed to contamination of the soils/gravels in question or classification or re-classification of the contaminated soils themselves. Documentation of

any such U.S. Department of Energy determination should include the particular authority and technical basis that Energy may have applied to this classification determination. This information will help EPA better understand Energy's basis for disposing of contaminated environmental media and debris potentially contaminated with high-level radioactive waste from Hanford's tank farms.

Response:

With regard to the determination of disposition of the waste based on the radionuclide component, the Backlog soils were managed under DOE authority in accordance with DOE Order 5820.2A, Radioactive Waste Management. This is the order that was governing at the time of the waste generation and was the predecessor to DOE Order 435.1, Radioactive Waste Management that is now in place. The definition of High-Level Waste (HLW) is quoted from DOE Order 5820.2A below.

"High-Level Waste. The highly radioactive waste material that results from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid waste derived from the liquid that contains a combination of transuranic waste and fission products in concentrations requiring permanent isolation."

The Backlog soil wastes were determined to contain radioactivity at low enough levels such that it could be disposed in the Hanford Low-Level burial grounds in accordance with the Low-Level Waste (LLW) disposal performance objectives specified by 5820.2A. Therefore, the radioactive waste "classification" (i.e. LLW, TRU etc.) of Backlog soil waste was determined to be LLW at the time of generation and the waste managed as LLW. The LLW determination is documented by the Low-Level Waste Storage/Disposal Records for the waste.

Requests for information #3:

Any "knowledge," as defined in WAC 173-303-040, that Energy may have used in designating the contaminated soils/gravels/debris pursuant to WAC 173-303-070 through WAC 173-303-100. Energy's notification of self-implementing disposal discusses some key elements of sampling and analysis conducted in support of the notification, but is incomplete with respect to designation under the Hazardous Waste Management Act. More specifically, the notification states that the soils/gravels in question have received a contained in determination form Ecology for F001-F005, but has not considered whether or not the soils/gravels exhibit any hazardous characteristic, which might result in PCBs becoming subject to treatment as an underlying hazardous constituent. This information will help EPA better understand the treatment requirements which may apply to the contaminated soils/gravels pursuant to 40 CFR 268, incorporated by reference by WAC 173-303-140, and how these treatment requirements may relate to any TSCA decision EPA may make or the suitability of the wastes in their current form for disposal in the mixed waste trenches 31/34. EPA notes that the effective date of the treatment standard of HLWIT for high level radioactive wastes bearing dangerous waste numbers D002, and D004-D011 is May 8, 1990, (55 Federal Register 22520), so that this treatment standard would have attached to tank wastes that contaminated at least some of the soils/gravels addressed by the July 2 notification..

Response:

The Backlog soil waste was designated based on analysis results of samples collected from 75 different drums containing Backlog soil. The results of the analysis are evaluated and reported in the test report HNF-SD-WM-TD-018, Tank Farms Backlog Soil Sample and Analysis Results Supporting a Contained-in Determination, this report is attached. The soil was tested for the hazardous characteristics of corrosivity, ignitability, reactivity, and toxic metals and organics. The soil was determined not to exhibit any of these hazardous characteristics that would require treatment to meet land disposal restriction requirements.

Using the data reported in HNF-SD-WM-TD-018, the State of Washington Department of Ecology (Ecology) granted a Contained-in determination for Backlog soil in a letter entitled Contained-In Determination for 828 Tank Farm Backlog Soil Drums, dated February 12, 1997. The Ecology determination removes the listed waste codes from the waste because the waste no longer contains solvents associated with the listed waste codes F001 through F005. This Ecology letter is also attached.

References:

- HNF-SD-WM-TD-018, 1997, Tank Farms Backlog Soil Sample and Analysis Results Supporting a Contained-in Determination, Rev. 0, Fluor Hanford, Inc., Richland, Washington.
- Letter Ron Skinnarland, Ecology to Tom Teynor, DOE, dated February 12, 1997, Contained-In Determination for 828 Tank Farm Backlog Soil Drums.

Tank Farms Backlog Soil Sample and Analysis Results Supporting a Contained-In Determination

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Rust Federal Services Hanford, Richland, WA 99352

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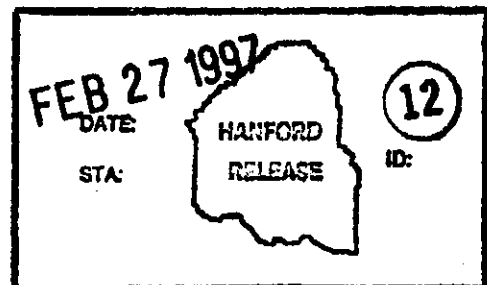
Abstract: The Backlog Waste Program was established to characterize and determine the proper disposal method for backlog soil waste. The backlog waste consisted of 2276 containers generated from Tank Farms operations during 1989 through early 1993. A sampling campaign was undertaken in 1992 and 1996. This report presents the results and evaluations from that campaign which, based on the "decision rule", supports a "Contained-In Determination."

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APPENDICES

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- II. Appendix B: 1996 Field Data**
- III. Appendix C: 1996 Quality Assurance Data**
- IV. Appendix D: 1992 Laboratory Results.**
- V. Appendix E: 1996 Calculations**

1.0 INTRODUCTION

Soil waste is generated from Tank Farms and associated Tank Farms facilities operations. The soil is a mixed waste because it is an environmental media which contains tank waste, a listed mixed waste. The soil is designated with the listed waste codes (F001 through F005) which have been applied to all tank wastes. The scope of this report includes Tank Farms soil managed under the Backlog program. The Backlog Tank Farm soil in storage consists of 769 drums and 5 boxes (originally 828 drums).

The Backlog Waste Program dealt with 2276 containers of solid waste generated by Tank Farms operations during the time period from 1989 through early 1993. The containers were mismanaged by being left in the field for an extended period of time without being placed into permitted storage. As a corrective action for this situation, these containers were placed in interim storage at the Central Waste Complex (CWC) pending additional characterization. The Backlog Waste Analysis Plan (BWAP) (RL 1993) was written to define how Backlog wastes would be evaluated for proper designation and storage. The BWAP was approved in August 1993 and all work required by the BWAP was completed by July 1994.

This document presents results of testing performed in 1992 & 1996 that supports the attainment of a Contained-In Determination for Tank Farm Backlog soils. The analytical data contained in this report is evaluated against a prescribed decision rule. If the decision rule is satisfied then the Washington State Department of Ecology (Ecology) may grant a Contained-In Determination. A Contained-In Determination for disposal to an unlined burial trench will be requested from Ecology. The decision rule and testing requirements provided by Ecology are described in the *Tank Farms Backlog Soil Sample Analysis Plan (SAP)* (WHC 1996).

2.0 SCOPE

The purpose of this report is to present and evaluate the test data per the decision rule for the purpose of obtaining a Contained-In determination for Tank Farms Backlog soil. The document will present analysis data collected per the SAP and analysis data collected in 1992. These data will be compared to the acceptance levels specified in the SAP, if the decision rule is satisfied then a request for a Contained-In Determination will be submitted to Ecology.

3.0 TEST RESULTS

3.1 Sample Collection

Two sampling and testing campaigns were undertaken in 1992 & 1996. In the campaign of 1992 eight drums were sampled and tested. Then the samples were split and sent to Westinghouse Hanford Company (WHC) and Ecology contract laboratories for analysis. The Ecology lab results are used here in the decision making.

There were a total of 70 drums sampled in 1996. Three of the 70 were reanalyses of 1992 drums so only 67 new drums were tested. Specific sample analyses for constituents of major concern were requested and the results were reported per requirements in the SAP.

3.1.1 Sample Collection Campaign for 1996

The project in 1996 consisted of sampling 70 drums, field testing samples and testing the samples in a laboratory. Samples were sent to Waste Sampling and Characterization Facility (WSCF) laboratory for analysis. Duplicate or split samples for selected drums were sent to Quanterra and Ecology laboratory. Samples were collected and tested in accordance with *Test Methods for the Evaluation of Solid Waste- Physical/Chemical Methods, SW-846 (EPA 1986)* methods and protocols (see reference section). The dose rates on the samples did not exceed 5 mrem/hr. There were two types of samples taken, a grab sample for Volatile Organic Analysis (VOA) and Semivolatile Organic Analysis (SVOA) and a composite sample. The grab samples were collected from the interior of the drum. The sample bottles were filled immediately following the extraction of the soil. The composite samples were collected by extracting at least one core of soil, depositing the core(s) in a bowl, mixing the soil and then filling the sample bottles. Also a set of VOA trips for each day, 6 sets of field blanks and 4 split samples were sent to the laboratories as field QA samples. The blanks consisted of a clean sand material.

The analyses requested for the samples sent to WSCF and Quanterra laboratories were Toxicity Characteristic Leaching Procedure (TCLP) metals, Inductive Coupled Plasma Spectroscopy (ICP) metals conducted on 19 samples, SVOA, VOA, sulfide, cyanide, flashpoint (as needed) and pH, herbicides, pesticides and radiochemistry.

3.1.2 Sample Collection Campaign for 1992

Eight drums of backlog soil were sampled. The samples were split and tested at two different laboratories. One set of samples was sent for analysis to a laboratory under contract with WHC, the other set was relinquished to Ecology personnel who sent the samples to a different laboratory for analysis.

Samples were collected in November of 1992 and managed in adherence with *Test Methods for the Evaluation of Solid Waste- Physical/Chemical Methods, SW-846 (EPA 1986)* methods and protocols. Twenty drums were selected by Ecology for sample collection and testing, but only eight from SX Farm were sampled due to delays and difficulties. All dose rates from the selected drums are less than 10 mrem/Hr. Samples were collected from the top inch of soil for volatile organic analysis. All other samples were collected by obtaining at least one core, compositing the core into a bowl and then filling the sample bottles.

A set of five trip blanks were also sent to each laboratory as field QA samples. The trip blanks

were a clean sand material.

During sample collection the vapor space in the drum was monitored using a photo ionizing detector. No vapors were detected.

Analyses requested for Ecology samples were anions, ICP metals, VOA, SVOA, sulfide and cyanide reactivity, pH, herbicides and pesticides.

3.2 1996 Data

The 1996 data is comprised of laboratory analysis and field data for 70 drums that were sampled and analyzed for the constituents of concern.

3.2.1 Analytical Data

The laboratory and field results represent the analytical data for the 70 drums sampled and analyzed in 1996. Three of the 70 drums were retests for specific analyses of the 1992 tests. Major data qualifications are shown in the Appendices. The laboratory results (Appendix A) were extracted from validated summary data packages provided by the laboratory. The field data results are listed in Appendix B.

There were four samples tested for pesticides that possessed a major deficiency due to low surrogate recoveries. These results are not be used for decision making.

A major deficiency is noted in hold time exceedances for pesticide analyses. The hold time exceedance was not significant based on scientific studies which indicate that the pesticides in question (organochlorine pesticides) are persistent and do not readily degrade. Significant losses of organochlorine pesticides are usually measured in years. The amount of degradation that would occur due to weeks or months of the hold time exceedance would be very small and difficult to measure (see pesticide listings in reference section). For this reason, the results for the pesticides that are qualified for hold time deficiency are used in the decision making.

A low spike recovery of silver was noted as a major deficiency. The spike recoveries are not significant because: 1) the analytical results were non-detectable and 2) in all cases the results are greatly below the regulatory threshold by a factor of 58. Therefore, despite major deficiency the quality of the data results for the silver are adequate for making a decision.

A major deficiency is noted in the semivolatile analyses due to a surrogate recovery of less than 10%. These data are not useable for decision making for some semivolatile constituents. So 73 results remained for decision making for some semivolatile constituents. The constituents are noted in Appendix A. The surrogate and low spike recoveries are chemicals which are added to a sample to confirm the effectiveness of the test procedure. A low recovery indicates an error

may have occurred that may cause the results to be low, thus biasing the results.

It may be noted that Polychlorinated Biphenyls (PCBs) were detected in 40 soil samples and listed in Appendix A. They are not used for decision making because PCBs are not listed as (according to the SAP) constituents of concern to obtain a Contained-In Determination.

Field data recorded includes: Organic Vapor Monitoring results (OVM), paint filter test, pH and recorded room temperature when a drum was opened. As per the SAP if no liquids were present in the soil samples, the flashpoint test was not necessary. Field data is presented in Appendix B.

A drum of absorbed liquid was tested and reported. The results are presented as miscellaneous data (Appendix A). The results were not included in the decision making.

3.2.2 Quality Assurance Data

Analysis of deionized water used for dampening the soil during sample collection was performed in the 1996 sampling campaign. Insignificant levels of contamination are reported in the water. The data was reported as miscellaneous data (Appendix A).

The trip blanks were tested for volatiles in the 1996 data results detected acetone. The presence of the constituent could be the result of contamination of samples, producing a false positive. As the test results are well below the Model Toxic Control Act (MTCA) threshold (listed in Tables 1 & 2), no attempt was made to correct for the bias in the acetone results. The data is included in the decision making.

Duplicate samples of selected drums were sent to Quanterra. The analyses of both laboratories detected the constituents: barium, benzo(b)fluoranthene and PCBs. It was noted that the results for barium analyzed in the Quanterra laboratory were greater than the results taken from WSCF by a factor of 2. A difference in the results between the laboratories appears to exist for barium. The higher Quanterra result was used for the decision making.

3.3 1992 Data

3.3.1 Analytical Data

Ecology & WHC tested samples from eight drums of soil in 1992. The Ecology results were included in the Appendix D and are used for decision making. The Ecology data was not validated but rather used as provided. All of these results are used for decision making except those retested in 1996.

It is noted that one sulfide-releasable and two flashpoint tests exceeded their threshold limits. To confirm the results, the constituents were reanalyzed in 1996. The new analyses yielded results

Table 1. Constituents of Concern Thresholds

Chemical Name	Characteristic Threshold (mg/L)	MTCA Threshold (mg/kg)
Ignitability	fp. < 140°F and free liquid	na
Corrosivity	pH < 2 or pH > 12.5	na
Reactive CN (mg HCN/kg)	250 mg HCN/kg	
Reactive S (mg H ₂ S/kg)	500 mg H ₂ S/kg	
Acetone	na	8000
Arsenic	5	na
Barium	100	na
Benzene	0.5	na
Cadmium	1	na
Carbon Tetrachloride	0.5	na
Chlordane	0.03	na
Chlorobenzene	100	na
Chloroform	6	na
Chromium	5	na
o-Cresol & m-Cresol	200	400
p-Cresol	200	4000
2,4-D	10	na
1,4-Dichlorobenzene	7.5	na
1,2-Dichloroethane	0.5	na
1,1-Dichloroethylene	0.7	na
2,4-Dinitrotoluene	0.13	na
Endrin	0.02	na
Heptachlor epoxide	0.008	na
Hexachlorobenzene	0.13	na
Hexachlorobutadiene	0.5	na
Hexachloroethane	3	na

Table 1. Constituents of Concern Thresholds (cont'd)

Chemical Name	Characteristic Threshold (mg/L)	MTCA Threshold (mg/kg)
Lead	5	na
Lindane	0.4	na
Mercury	0.2	na
Methoxychlor	10	na
Methyl Ethyl Ketone	200	48000
Methyl Isobutyl Ketone	na	4000
Methylene Chloride	na	133
Nitrobenzene	2	na
Pentachlorophenol	100	na
Pyridine	5	na
Selenium	1	na
Silver	5	na
Tetrachloroethylene	0.7	na
Toxaphene	0.5	na
2,4,5-TP (silvex)	1	na
1,1,1-Trichloroethane	na	72000
Trichloroethylene	0.5	na
2,4,5-Trichlorophenol	400	na
2,4,6-Trichlorophenol	2	na
Vinyl Chloride	2	na
Polycyclic Aromatic Hydrocarbon	1% PAH	na
Halogenated Hydrocarbon	.01% HH	na
criteria toxic	.001% EC	na

Note: This table is representative of all major constituents of concern and the associated thresholds.

Table 2. Detected Constituents of Concern and Maximum Results

Chemical Name	Result Converted to Threshold (mg/L)	Maximum Results
Ignitability		>100°C
Corrosivity		9.72
Reactive CN (mg HCN/kg)	4.495	89.9 mg/kg
Reactive S (mg H ₂ S/kg)	12.8	256 mg/kg
Acetone	.0044	0.088 mg/kg
Barium	0.677	.677 mg/L
Chromium	0.166	0.166 mg/L
o-Cresol & m-Cresol	.00265	0.053 mg/kg
2,4-D	.0000275	0.00055 mg/kg
Lead	2.99	2.99 mg/L
Mercury	.00055	0.011 mg/kg
Methyl Ethyl Ketone	.0003	0.006 mg/kg
Methyl Isobutyl Ketone	.0016	0.032 mg/kg
Methylene Chloride	.00015	0.003 mg/kg
Silver	0.086	.086 mg/L
2,4,5-TP (silvex)	.00035	0.007 mg/kg
Polycyclic Aromatic Hydrocarbon	0.0003479%	na
Halogenated Hydrocarbon	0.0079056%	na
criteria toxic	0.00%	na

Note: This table consists of detected constituents of concern and the maximum results for each.

detected below the threshold limits. The 1996 results were used for decision making, in lieu of the 1992 results for the constituents because the results are corroborated by the 1992 WHC test results.

3.3.2 Quality Assurance data

Eight split samples were taken by WHC with the Ecology samples. The WHC flashpoints and reactive sulfide results were below regulatory thresholds, which did not corroborate with the Ecology results. The other WHC results agree with the Ecology results.

3.4 Decision Rule

The decision rule stated here is extracted verbatim from the SAP. Each result is compared to the appropriate standard or threshold. If a listed constituent is detected, then the result will be compared to the MTCA standard or regulatory threshold for the characteristic, which ever is lower. If not a listed constituent then the result is compared to the constituent characteristic regulatory threshold. Washington State criteria thresholds are also evaluated for the listed constituents (Table 1). The statistical test to determine if a constituent is less than its threshold for the waste stream is dependent upon the distribution of the data. The decision rule is:

1. For each constituent of concern 71 results (except 6010 metals, 7 results is adequate) must exist and the distribution of a transform (e.g., lognormal) is determined to be normal. If so, a confidence interval approach is employed. The upper confidence interval on the true soil concentration is less than the soil threshold shown on Table 1. Statistical tests shall be performed at a Type 1 error level of 0.05 (one-tailed test of the null hypothesis that the true soil concentration of a hazardous substance exceeds the threshold). If a transform is not normal then proceed to step 2.
2. For each constituent of concern 71 results (except 6010 metals, 7 results is adequate) must exist and all the results (nonparametric approach) must be below the appropriate standard of Table 1. For each exceedance four more tests must be performed that are below the appropriate standard of Table 1 for that constituent.

If either 1 or 2 above are successful for each constituent of concern listed on Table 1 then, statistically adequate data has been collected to obtain a Contained-In determination, thus, satisfying the Data Quality Objective (DQO). The purpose of the Data Quality Objective is to demonstrate that constituents of concern are below MTCA standards for listed constituents and that the soil possesses no dangerous waste characteristics or criteria.

3.4.1 Evaluation of Data for Decision Making

In evaluating the data for satisfaction of the decision rule, decision rule option 2 is used. A

determination of the normality of a transform of the data was not attempted.

There are 67 new (1996) and 8 old (1992) points existing for a possible total of 75 results. After considering the data qualifications described in sections 3.2 & 3.3 for each constituent there exists 71 to 75 valid results for decision making. As stated in section 3.2.1 the 71 pesticide and 73 of some semivolatile constituents possess adequate quality for decision making. Thus, the minimum requirement of 71 results was met for each constituent. Therefore, enough quality data exists to make a decision per the decision rule in the SAP.

The applicable MTCA standards and regulatory thresholds for characteristics or state criteria for major constituents of concern are listed in Table 1. As shown in Table 2 all detected results are less than the standards (thresholds). If not shown in Table 2, the constituent was not detected and the constituent detection limit is below the threshold. The maximum result listed in Table 2 is the result that is the greatest of the qualified data for that constituent.

Calculations were performed to determine the state of the Washington criteria status. The presence of Polycyclic Aromatic Hydrocarbons (PAH), Halogenated Hydrocarbon (HH) and Toxicity characteristics (EC) results are all below the threshold limits. Calculations are provided in Appendix E (PAH & HH Table and the EC% analyses). The EC% analyses are shown in the corresponding Solid Waste Engineering Analysis sheets. All of the calculations employ the maximum results and weight percentages for each constituent (Table 3), used in decision making.

4.0 CONCLUSION

An adequate amount of quality data (71 results) exists to satisfy the decision rule. The analytical results for the detected major constituents of concern fell far below the threshold limits established per the decision rule. Thus, the waste is suitable to obtain a Contained-In Determination for Tank Farm Backlog soil from Ecology.

Table 3. State Persistent Chemicals: Maximum Results & Percentages

Polycyclic Aromatic Hydrocarbons (PAH)		
Chemical Name	Maximum Result (mg/kg)	Weight%
Acenathene	0.04	0.000004
Anthracene	0.12	0.000012
Benzo(a)anthracene	0.29	0.000029
Benzo(a)pyrene	0.16	0.000016
Benzo(b)fluoranthene	0.16	0.000016
Benzo(g,h,i)perylene	0.063	0.0000063
Benzo(k)fluoranthene	0.069	0.0000069
Chrysene	0.44	0.000044
Dibenz(a,h)anthracene	0.049	0.0000049
Fluoranthene	0.35	0.000035
Fluorene	0.049	0.0000049
Indeno(1,2,3-c,d) pyrene	0.049	0.0000049
Phenanthrene	0.74	0.000074
Pyrene	0.9	0.00009
Total (PAH)%		0.0003479%

Table 3. State Persistent Chemicals: Maximum Results & Percentages (cont'd)

Halogenated Hydrocarbon (HH)		
Chemical Name	Maximum Result (mg/kg)	Weight%
2,4-D	0.011	0.0000011
Methyl Ethyl Ketone	0.006	0.0000006
Methyl Isobutyl Ketone	0.032	0.0000032
PCBs	79	0.0079
2,4,5-TP (Silvex)	0.007	0.0000007
Total (HH)%		0.0079056%

- Notes:
1. The table is representative of PAH & HH constituents of concern that have been detected.
 2. The PAH & HH constituents are also listed in Tables 1 & 2.
 3. The total PAH and HH percents are the sums of the weight percents of the constituents.
 4. The weight% is the result of multiplying the maximum result by 10,000.

5.0 REFERENCES

DOE/RL 1993, *Waste Analysis Plan for Confirmation of Completion of Tank Farms Backlog Soil Waste Designation*, DOE-RL-93-70, Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, WA.

EPA 1986, *Test Methods for the Evaluation of Solid Waste- Physical / Chemical Methods*, SW-846, 3rd Ed., U.S. Environmental Protection Agency, Washington, D.C.

J. L. Westcott, to R. D. Pierce, et al., "Backlog Soil: Data Supporting Characterization," 87600-95-JLW-004, August 31, 1995, pp. 2-3.

K. B. Wehner, to J. L. Westcott, "Degradation and Persistence of Organochlorine Pesticides in Soil," October 25, 1996.

WHC 1996, *Tank Farm Soils Sample & Analysis Plan*, WHC-SD-WM-TP-440, Rev. 0, Westinghouse Hanford Company, Richland, WA.

APPENDIX A

1996 Laboratory Results

Comprised of 7 pages including the cover page

Glossary of Organic Data Reporting Qualifiers

- B-** Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.
- U-** Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.
- UJ-** Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.
- J-** Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However, in either case, the associated data should be considered usable for decision making purposes.
- NJ-** Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
- N-** Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
- JN-** Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.
- UJN-** Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected (U) due to associated blank contamination.
- UR-** Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.
- R-** Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

Sample #	Sample ID	pH	Reactive CN	Reactive S	Aromatic	Berthol	Calcium	Chromium	Lead	Silver	Selenium	Mercury	Total Alpha	Total Beta	C1134	C1137	8390	C660	En154	En155	8p-115
WTF-21-200-04	W-0005	NA	NA	U	U	U	U	U	U	U	U	U	31.70	17900	U	U	NA	U	U	U	U
WTF-21-200-18	W-0018	NA	NA	U	U	U	U	U	U	U	U	U	11.80	11700	U	U	NA	U	U	U	U
WTF-21-200-46	W-0045	NA	NA	U	U	U	U	U	U	U	U	U	21.53	8154	U	U	NA	U	U	U	U
WTF-21-200-47	W-0047	NA	NA	U	U	U	U	U	U	U	U	U	64.15	3418	U	U	NA	U	U	U	U
WTF-21-200-51	W-0048	NA	NA	U	U	U	U	U	U	U	U	U	76.43	23740	U	U	NA	U	U	U	U
WTF-21-200-52	W-0052	NA	NA	U	U	U	U	U	U	U	U	U	87.7	1657	U	U	NA	U	U	U	U
WTF-21-200-74	W-0074	NA	NA	U	U	U	U	U	U	U	U	U	57.7	2000	U	U	NA	U	U	U	U
WTF-21-200-95	W-0095	NA	NA	U	U	U	U	U	U	U	U	U	197.0	2695	U	U	NA	U	U	U	U
WTF-21-201-42	W-0142	NA	NA	U	U	U	U	U	U	U	U	U	2.670	5730	U	U	NA	U	U	U	U
WTF-21-201-43	W-0143	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-45	W-0145	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-47	W-0147	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-48	W-0148	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-49	W-0149	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-50	W-0150	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-51	W-0151	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-52	W-0152	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-53	W-0153	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-54	W-0154	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-55	W-0155	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-56	W-0156	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-57	W-0157	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-58	W-0158	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-59	W-0159	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-60	W-0160	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-61	W-0161	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-62	W-0162	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-63	W-0163	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-64	W-0164	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-65	W-0165	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-66	W-0166	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-67	W-0167	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-68	W-0168	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-69	W-0169	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-70	W-0170	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-71	W-0171	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-72	W-0172	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-73	W-0173	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-74	W-0174	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-75	W-0175	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-76	W-0176	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-77	W-0177	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-78	W-0178	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-79	W-0179	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-80	W-0180	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-81	W-0181	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-82	W-0182	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-83	W-0183	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-84	W-0184	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-85	W-0185	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-86	W-0186	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-87	W-0187	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-88	W-0188	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-89	W-0189	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-90	W-0190	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-91	W-0191	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-92	W-0192	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-93	W-0193	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-94	W-0194	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-95	W-0195	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-96	W-0196	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-97	W-0197	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-98	W-0198	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-201-99	W-0199	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-202-01	W-0201	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-202-02	W-0202	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-202-03	W-0203	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-202-04	W-0204	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-202-05	W-0205	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-202-06	W-0206	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-202-07	W-0207	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-202-08	W-0208	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-202-09	W-0209	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-202-10	W-0210	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-202-11	W-0211	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-202-12	W-0212	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-202-13	W-0213	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	U
WTF-21-202-14	W-0214	NA	NA	U	U	U	U	U	U	U	U	U	NA	NA	U	U	NA	U	U	U	

Drum Pkg #	Field Sample #	Matrix	Asbestos	Barium	Beryllium	Cadmium	Cobalt	Copper	Iron	Lead	Lithium
WTF-21-308-45	W-4045	5005	U	54.1	U	7.908	8.49	6.02	7.7	14.00	U
WTF-21-308-46	W-4046	4530	U	54.6	U	50.8	5.72	6.35	6.45	15.00	U
WTF-21-308-47	W-4047	4320	U	51.5	U	66.00	7.16	6.63	6.94	15.00	U
WTF-21-308-48	W-4048	4300	U	51.5	U	94.00	7.14	5.43	6.03	13.00	U
WTF-21-308-49	W-4049	4180	U	50.7	U	97.00	6.78	5.97	5.46	14.00	U
WTF-21-308-50	W-4050	3790	U	54.1	U	55.60	7.46	5.61	6.07	13.00	U
WTF-21-308-51	W-4051	4090	U	54.9	U	64.10	7.49	5.63	6.49	15.00	U
Detection Limit	NA	NA	0.15	0.701 TO 6.738	0.351 TO 6.408	0.556 TO 6.412	13.16 TO 16.31	6.614 TO 6.714	1.228 TO 1.429	0.439 TO 6.431	0.386 TO 6.437
Drum Pkg #	Field Sample #	Matrix	Asbestos	Barium	Beryllium	Cadmium	Cobalt	Copper	Iron	Lead	Lithium
WTF-21-308-48	W-4048	36900	U	7.7	839	U	135	16.4	U	22.6	31.58
WTF-21-308-49	W-4049	3430	U	7.34	773	U	135	16.4	U	22.6	31.58
WTF-21-308-50	W-4050	3350	U	6.94	750	U	146	19.43	U	21	30.1
WTF-21-308-51	W-4051	37900	U	6.45	809	U	133	19.43	U	14.5	37.88
WTF-21-308-52	W-4052	33400	U	6.43	843	U	132	21.72	U	17.7	34.58
WTF-21-308-53	W-4053	32400	U	6.43	738	U	148	19.43	U	14.6	37.5
WTF-21-308-54	W-4054	42100	U	7.45	979	U	149	19.43	U	22.6	30.8
Detection Limit	NA	NA	0.15	1.228 TO 7.209	0.133 TO 10.41	2.1	12.56 TO 6.413	3.432 TO 14.61	0.451 TO 13.16	1.228 TO 1.429	0.351 TO 6.408

Drum Pkg #	Field Sample #	Matrix	Asbestos	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Lithium
WTF-21-308-45	W-4045	6090	0.2	< 6.47	57.5	< 0.3710	< 0.590	56.00	7.45	6.51	20.00	U
WTF-21-308-46	W-4046	6570	0.2	< 6.46	67.71	< 0.3710	< 0.5800	44.00	7.39	7.93	20.00	U
WTF-21-308-47	W-4047	6780	0.2	< 6.33	66.63	< 0.3710	< 0.5760	50.00	7.44	6.57	20.00	U
WTF-21-308-48	W-4048	6099	0.2	< 6.33	64.30	< 0.3710	< 0.5760	50.00	7.44	6.57	20.00	U
WTF-21-308-49	W-4049	5210	0.2	< 6.33	64.31	< 0.3710	< 0.5760	43.70	6.63	6.41	16.00	U
WTF-21-308-50	W-4050	5770	0.2	< 6.40	61.59	< 0.4000	< 0.6000	40.90	6.78	6.38	22.00	U
WTF-21-308-51	W-4051	6160	0.2	< 6.40	61.16	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-52	W-4052	5630	0.2	< 6.33	60.13	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-53	W-4053	5890	0.1	< 6.33	61.16	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-54	W-4054	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-55	W-4055	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-56	W-4056	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-57	W-4057	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-58	W-4058	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-59	W-4059	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-60	W-4060	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-61	W-4061	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-62	W-4062	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-63	W-4063	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-64	W-4064	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-65	W-4065	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-66	W-4066	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-67	W-4067	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-68	W-4068	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-69	W-4069	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-70	W-4070	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-71	W-4071	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-72	W-4072	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-73	W-4073	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-74	W-4074	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-75	W-4075	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-76	W-4076	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-77	W-4077	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-78	W-4078	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-79	W-4079	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-80	W-4080	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-81	W-4081	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-82	W-4082	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-83	W-4083	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-84	W-4084	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-85	W-4085	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-86	W-4086	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-87	W-4087	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-88	W-4088	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-89	W-4089	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-90	W-4090	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-91	W-4091	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-92	W-4092	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-93	W-4093	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-94	W-4094	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-95	W-4095	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-96	W-4096	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-97	W-4097	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-98	W-4098	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-99	W-4099	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-100	W-4100	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-101	W-4101	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-102	W-4102	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-103	W-4103	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-104	W-4104	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-105	W-4105	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-106	W-4106	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-107	W-4107	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-108	W-4108	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-109	W-4109	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-110	W-4110	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-111	W-4111	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-112	W-4112	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-113	W-4113	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-114	W-4114	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-115	W-4115	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-116	W-4116	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-117	W-4117	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-118	W-4118	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-119	W-4119	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-120	W-4120	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-121	W-4121	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-122	W-4122	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-123	W-4123	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-124	W-4124	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-125	W-4125	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-126	W-4126	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-127	W-4127	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-128	W-4128	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-129	W-4129	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.00	6.39	6.38	22.00	U
WTF-21-308-130	W-4130	6270	0.2	< 6.33	65.10	< 0.3710	< 0.5760	35.				

[illegible]

note: 1. All organic results are reported in micrograms per kilogram (ug/kg).
2. The samples that are italicized have a major deficiency in their surrogate recoveries for semivolatiles.

TD-018

[illegible]

HMF-SD-WM-TD-016

APPENDIX B

1996 Field Data

Comprised of 2 pages including the cover page

Field Screen Data

HNF-SD-WM-TD-018

Rev. 0

PIN #	Sample #	Temperature (F)	PID Reading (ppm)	FID Reading (ppm)	pH	Paint Filter
WTFF-91-200-06	W-0006	76	<1	<1	6	Neg
WTFF-92-300-18	W-0018	68	0.1	<0	7	Neg
WTFF-92-300-45	W-0045	76	0.15	0.3	7	Neg
WTFF-92-300-46	W-0046	76	0.05	0.22	7	Neg
WTFF-92-300-47	W-0047	76	<1	<1	7	Neg
WTFF-92-300-48	W-0048	70	0.19	<0.1	5	Neg
WTFF-92-300-52	W-0052	76	0.2	0.5	6	Neg
WTFF-92-300-74	W-0074	70	0.1	<1	5	Neg
WTFF-92-300-95	W-0095	76	0.35	0.32	7	Neg
WTFF-92-301-42	W-0142	70	14	12	5	Neg
ETFF-90-0283	W-0283	70	1.25	0.5	5	Neg
ETFF-90-0285	W-0285	70	2.5	0.17	7	Neg
ETFF-90-0287	W-0287	64	<1	<1	4	Neg
ETFF-90-0291	W-0291	70	0.1	0.1	4	Neg
ETFF-90-0292	W-0292	64	0.5	2.2	5	Neg
ETFF-91-036-9	W-0369	76	2	0.7	6	Neg
ETFF-90-0488	W-0488	70	0.2	0.4	6	Neg
ETFF-90-0498	W-0498	70	0.5	0.5	4	Neg
WTFF-92-106-02	W-0602	70	0.46	0.1	5	Neg
WTFF-92-106-03	W-0603	76	<1	<1	6	Neg
EKEH-91-108-12	W-0812	70	0.15	0.33	5	Neg
EKEH-91-108-45	W-0845	70	<0.1	0.1	4	Neg
EKEH-91-108-92	W-0892	68	0.13	<0	6	Neg
ETFF-90-0943	W-0943	70	<1.0	250	5	Neg
ETFF-90-0946	W-0946	70	0.1	2,500	5	Neg
ETFF-90-0969	W-0969	76	<1	<1	6	Neg
WTFF-92-311-57	W-1157	68	0.02	<0	7	Neg
EKEH-91-112-20	W-1220	68	0.1	>5,000	6	Neg
ETFF-90-1257	W-1257	70	0.08	0.16	6	Neg
ETFF-91-213-02	W-1302	88	16	18	10	Neg
WTFF-93-015-04	W-1504	64	0.25	0.25	4	Neg
EKEH-91-121-08	W-2108	70	0.3	0.18	4	Neg
WKEH-91-323-01	W-2301	70	0.5	0.2	4	Neg
ETFF-93-027-01	W-2701	88	0.22	0.48	5	Neg
ETFF-93-027-03	W-2703	69	26.8	0.1	5	Neg
WTFF-91-329-04	W-2904	70	0.3	0.14	4	Neg
ETFF-91-233-21	W-3321	70	0.5	0.23	6	Neg
ETFF-91-235-03	W-3503	64	2	1.5	6	Neg
WTFF-92-136-02	W-3602	70	0.3	<1	5	Neg
ETFF-91-036-10	W-3610	68	0.11	<0	6	Neg
ETFF-91-036-12	W-3612	64	3	2	4	Neg
WKEH-92-140-05	W-4005	68	0.12	3.5	7	Neg
ETFF-93-042-05	W-4205	70	0.09	<1	6	Neg
ETFF-91-043-12	W-4312	76	0.09	0.28	7	Neg
ETFF-91-043-15	W-4315	76	0.14	0.25	6	Neg
ETFF-91-043-16	W-4316	76	<1	<1	6	Neg
EKEH-91-249-05	W-4905	70	0.2	0.24	5	Neg
ETFF-91-155-01	W-5501	76	2	>350	6	Neg
WTFF-91-157-03	W-5703	64	1.2	5	4	Neg
WTFF-92-163-01	W-6301	76	0.2	1.2	7	Neg
WTFF-92-297-106	W-7106	64	0.3	<1	6	Neg
EKEH-91-172-21	W-7221	69	1	0.5	6	Neg
EKEH-91-172-24	W-7224	68	0.03	<0	6	Neg
WTFF-91-175-05	W-7505	64	0.2	<1	6	Neg
WTFF-91-175-09	W-7509	64	0.5	<2	4	Neg
WTFF-92-079-07	W-7907	70	<1	<1	5	Neg
EKEH-91-081-03	W-8103	70	0.1	<0.1	6	Neg
EKEH-91-081-04	W-8104	69	0.5	11	6	Neg
ETFF-92-184-01	W-8401	64	<1	0.3	4	Neg
ETFF-91-085-11	W-8511	76	5.24	0.5	7	Neg
WTFF-91-086-11	W-8611	68	0.18	<0	6	Neg
ETFF-91-087-03	W-8703	64	<1	<1	4	Neg
ETFF-91-087-11	W-8711	76	<1	<1	7	Neg
WKEH-91-290-29	W-9029	68	2.4	<0	6	Neg
WTFF-92-297-14	W-9714	76	<1	<1	7	Neg
WTFF-92-297-22	W-9722	68	0.04	<0	7	Neg
WTFF-92-297-71	W-9771	68	0.04	0.15	7	Neg
WTFF-92-297-72	W-9772	76	<1	<1	6	Neg
WTFF-92-297-73	W-9773	70	0.01	0.2	4	Neg
WTFF-92-297-74	W-9774	76	0.15	0.2	6	Neg

Notes: 1. The paint filter result "Neg" means that no liquid was observed.

APPENDIX C

1996 Quality Assurance Data

Comprised of 5 pages including the cover page

Glossary of Organic Data Reporting Qualifiers

- B-** Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.
- U-** Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.
- UJ-** Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.
- J-** Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However, in either case, the associated data should be considered usable for decision making purposes.
- NJ-** Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
- N-** Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
- JN-** Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.
- UJN-** Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected (U) due to associated blank contamination.
- UR-** Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.
- R-** Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

Variations in Sample Analysis Results taken from WSCF and Quanterra

WSCF: Packet#96001100-WSC-036

Quanterra Packet#W1088-QES-543

WSCF

Sample#	TCLP (ug/ml)
W-0291-3	Ba=.425
W-0048-3	Ba=.286
W-0283-3	Ba=.338
W-0943-3	Ba=.236

Sample#	Semi-Volatiles
W-0283-4	Benzo(b)Fluor.= 89 ug/mg Chrysene = 81 ug/mg

Quanterra

Sample#	TCLP (ug/l)
Q-0291-3	Ba=677.0
Q-0048-3	Ba=575.0
Q-0283-3	Ba=661
Q-0943-3	Ba= 396.0

Sample#	Semi-Volatiles
Q-0283-4	Benzo(b)Fluor.=99ug/L

Notes: 1. The chart is representative of analysis results reported by two laboratories.
for the purpose of comparing results.

2. The Waste Sampling & Characterization Facility (WSCF) results begin with "W",
while Quanterra results begin with "Q".

HNF-SD-WM-TD-018
Rev. 0[illegible]

name	PCB ₁
U	U
U	U
U	U
U	U
U	U

6	
2.3	

HNF-SD-WM-TD-018

[illegible]

C-5

APPENDIX D

1992 Laboratory Results

Comprised of 3 pages including the cover page

Glossary of Organic Data Reporting Qualifiers

- B-** Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.
- U-** Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.
- UJ-** Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.
- J-** Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However, in either case, the associated data should be considered usable for decision making purposes.
- NJ-** Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
- N-** Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
- JN-** Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.
- UJN-** Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected (U) due to associated blank contamination.
- UR-** Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.
- R-** Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

Notes: 1. All organic results are reported in micrograms per kilogram ($\mu\text{g}/\text{kg}$) unless otherwise stated.
2. All inorganic results (ICP Methods) are reported in micrograms per gram ($\mu\text{g}/\text{g}$).
3. Cyclohexyl Sulfide are reported in milligrams per kilogram (mg/kg).
4. Alpha & Beta constituents are reported in picograms per gram (pg/g).

APPENDIX E

1996 Calculations

Comprised of 6 pages including the cover page

Chemical Name	Calculation of Weight%	Weight%
Acenathene	$.040 \text{ mg/kg} / 10,000 = .000004\%$	0.000004%
Anthracene	$.12 \text{ mg/kg} / 10,000 = .000012\%$	0.000012%
Benzo(a)anthracene	$.29 \text{ mg/kg} / 10,000 = .000029\%$	0.000029%
Benzo(a)pyrene	$.16 \text{ mg/kg} / 10,000 = .000016\%$	0.000016%
Benzo(b)fluoranthene	$.16 \text{ mg/kg} / 10,000 = .000016\%$	0.000016%
Benzo(g,h,i)perylene	$.063 \text{ mg/kg} / 10,000 = .0000063\%$	0.0000063%
Benzo(k)fluoranthene	$.069 \text{ mg/kg} / 10,000 = .0000069\%$	0.0000069%
Chrysene	$.440 \text{ mg/kg} / 10,000 = .000044\%$	0.000044%
Dibenz(a,h)anthracene	$.049 \text{ mg/kg} / 10,000 = .0000049\%$	0.0000049%
Fluoranthene	$.35 \text{ mg/kg} / 10,000 = .000035\%$	0.000035%
Fluorene	$.049 \text{ mg/kg} / 10,000 = .0000049\%$	0.0000049%
Indeno(1,2,3-c,d) pyren	$.049 \text{ mg/kg} / 10,000 = .0000049\%$	0.0000049%
Phenanthrene	$.740 \text{ mg/kg} / 10,000 = .000074\%$	0.000074%
Pyrene	$.9 \text{ mg/kg} / 10,000 = .00009\%$	0.00009%
Total PAH%		0.0003479%

Note: Total PAH% is the sum of the weight percent of the constituents.

Chemical Name	Calculation of Weight%	Weight%
2,4-D	$.011 \text{ mg/kg} / 10,000 = .0000011\%$	0.0000011%
Methyl Ethyl Ketone	$.006 \text{ mg/kg} / 10,000 = .0000006\%$	0.0000006%
Methyl Isobutyl Ketone	$.032 \text{ mg/kg} / 10,000 = .0000032\%$	0.0000032%
PCBs	$79 \text{ mg/kg} / 10,000 = .0079\%$	0.0079%
2,4,5-TP (Silvex)	$.007 \text{ mg/kg} / 10,000 = .0000007\%$	0.0000007%
Total HH%		0.0079056%

Metals & Organics

Chemical Name	Maximum Result
Acetone	$88 \text{ ug/kg} \times \text{mg}/1000 \text{ ug} = .088 \text{ mg/kg}$
Barium	$.677 \text{ ug/ml} \times \text{mg}/1000 \text{ ug} \times 1000 \text{ ml/L} = .677 \text{ mg/L}$
Chromium	$.166 \text{ ug/ml} \times \text{mg}/1000 \text{ ug} \times 1000 \text{ ml/L} = .166 \text{ mg/L}$
o-Cresol & m-Cresol	$53 \text{ ug/mg} \times \text{mg}/1000 \text{ ug} = .053 \text{ mg/kg}$
Lead	$2.99 \text{ ug/ml} \times \text{mg}/1000 \text{ ug} \times 1000 \text{ ml/L} = 2.99 \text{ mg/L}$
Mercury	$11 \text{ ug/ml} \times \text{mg}/1000 \text{ ug} \times 1000 \text{ ml/L} = 11 \text{ mg/L}$
Methylene Chloride	$3 \text{ ug/kg} \times \text{mg}/1000 \text{ ug} = .003 \text{ mg/kg}$
Silver	$.086 \text{ ug/ml} \times \text{mg}/1000 \text{ ug} \times 1000 \text{ ml/L} = .086 \text{ mg/L}$

SOLID WASTE ENGINEERING ANALYSIS

HAZARDOUS ANALYSIS SMART (HAS) SYSTEM
HAS SYSTEM REPORT FOR REQUEST # BACKLOG

PAGE - 1

CURRENT DATE -- 2/18/97

MATERIAL -- EQUIVALENT CONCENTRATIONS FOR HALOGENATED HYDROCARBONS, POLYAROMATIC HYDROCARBONS AND ORGANICS

ANALYSIS DATE - 12/20/96

CONTAINER -

WASTE PHYSICAL STATE - L

TC PHYSICAL STATE - L

pH ~
FLASHPOINT - °F
DENSITY - g/CC

DESIGNATOR - CLJ
WASTE WEIGHT -
WASTE STATUS - K

CONSTITUENT LIST FOR ITEM #2-EC&HHPERCENT

CAS# MSDS#/RGN	CHEMICAL NAME	WEIGHT PERCENT	TOX	EC %	PERS/ LDR	SOURCES Use-Code-cls	LDR (WW/OT)	PRODUCT	D1	40 CFR D2	D3	TOXICITY CHARACTERISTIC Code-DW conc.-	-LDR conc.	GENERAL INFORMATION
108-10-1 FORM-	4-METHYL-2-PENTANONE	.0000	D	.0000		S-F003-DW -DW	0.05ppm 0.33ppm	CODE - U161 CLASS - DW LDR-LDR- POISON -	I			- - -	- - -	RQ-2270 K FP-73 °F RD-5/17/95
	TOT. % OF CHEM. IN WASTE MATRIX	.0000										NOTES: 0.8 G/ML DOT NAME: METHYL ISOBUTYL KETONE		
120-12-7 FORM- 16	ANTHRACENE	.0000	N	0.0000	PAH	- - - -		CODE - CLASS - LDR- - POISON -				- - -	- - -	RQ-2270 K FP- °F RD-1/26/95
	TOT. % OF CHEM. IN WASTE MATRIX	.0000										NOTES:		
129-00-0 FORM-	PYRENE	.0001	D	.0000	PAH	- - - -		CODE - CLASS - LDR- - POISON -				- - -	- - -	RQ-2270 K FP- °F RD-10/25/94
	TOT. % OF CHEM. IN WASTE MATRIX	.0001										NOTES:		
1319-77-3 FORM- 31	CRESOL	.0000	D	.0000		S-F004-DW -DW	2.82ppm 0.75ppm	CODE - U052 CLASS - DW LDR-LDR- POISON -		X		D026-200 ppm - - -	-200 ppm -	RQ-454 K FP- °F RD-1/09/95
	TOT. % OF CHEM. IN WASTE MATRIX	.0000										NOTES: 1.04 G/ML		
1336-36-3 FORM-	POLYCHLORINATED BIPHENYLS	.0079	D	.0000	HH LDR	- - - -		CODE - CLASS - LDR- - POISON -				- - -	- - -	RQ-0.454 K FP-368 °F RD-05/22/96
	TOT. % OF CHEM. IN WASTE MATRIX	.0079										NOTES:		
191-24-2 FORM-	BENZO (GHI) PERYLENE	.0000	N	0.0000	PAH	- - - -		CODE - CLASS - LDR- - POISON -				- - -	- - -	RQ-2270 K FP- °F RD-12/30/94
	TOT. % OF CHEM. IN WASTE MATRIX	.0000										NOTES:		
193-39-5 FORM-	INDENO(1,2,3- cd)PYRENE	.0000	N	0.0000	PAH	- - - -		CODE - U137 CLASS - DW LDR-LDR- POISON -				- - -	- - -	RQ-45.4 K FP- °F RD-9/26/94
	TOT. % OF CHEM. IN WASTE MATRIX	.0000										NOTES:		
205-99-2 FORM-	BENZ(a)ACEPHENANTH YLENE	.0000	N	0.0000	PAH	- - - -		CODE - CLASS - LDR- - POISON -				- - -	- - -	RQ-.454 K FP- °F RD-9/26/94
	TOT. % OF CHEM. IN WASTE MATRIX	.0000										NOTES:		

CURRENT DATE -- 2/18/97

HAS SYSTEM REPORT FOR REQUEST # BACKLOG

MATERIAL -- EQUIVALENT CONCENTRATIONS FOR HALOGENATED HYDROCARBONS, POLYAROMATIC HYDROCARBONS AND ORGANICS

ANALYSIS DATE - 12/20/96

CONTAINER -

WASTE PHYSICAL STATE - L

TC PHYSICAL STATE - L

pH -

DESIGNATOR - CLJ

FLASHPOINT -

°F

WASTE WEIGHT -

DENSITY -

g/cc

WASTE STATUS -

K

CONSTITUENT LIST FOR ITEM #2-EC&HHPERCENT

CAS# MSDS#/RGN	CHEMICAL NAME	WEIGHT PERCENT	TOX	EC #	PERS/ LDR	SOURCES		PRODUCT	40 CFR			TOXICITY CHARACTERISTIC		GENERAL INFORMATION
						Use-Code-cls	LDR (WW/OT)		D1	D2	D3	Code-DW conc. -	-LDR conc.	
206-44-0 FORM- TOT. % OF CHEM. IN WASTE MATRIX	FLUORANTHENE	.0000 .0000	D	.0000	PAH	- - - -		CODE - U120 CLASS - DW LDR-LDR- POISON -				- - - - - -	-	RQ-45.4 K FP- °F RD-1/26/95 NOTES:
207-08-9 FORM- TOT. % OF CHEM. IN WASTE MATRIX	BENZO (K) FLUORANTHENE	.0000 .0000	N	0.0000	PAH	- - - -		CODE - CLASS - LDR- POISON -				- - - - - -	-	RQ-2270 K FP- °F RD-1/26/95 NOTES:
218-01-9 FORM- 16 TOT. % OF CHEM. IN WASTE MATRIX	CHRYSENE	.0000 .0000	N	0.0000	PAH	- - - -		CODE - U050 CLASS - DW LDR-LDR-1 POISON -				- - - - - -	-	RQ-45.4 K FP- °F RD-1/26/95 NOTES:
50-32-8 FORM- 16 TOT. % OF CHEM. IN WASTE MATRIX	BENZO (A) PYRENE	.0000 .0000	N	0.0000	PAH	- - - -		CODE - U022 CLASS - DW LDR-LDR-1 POISON -				- - - - - -	-	RQ-454 K FP- °F RD-12/30/94 NOTES:
53-70-3 FORM- TOT. % OF CHEM. IN WASTE MATRIX	DIBENZANTHRACENE, 1,2,5,6-	.0000 .0000	N	0.0000	PAH	- - - -		CODE - U063 CLASS - AHW LDR-LDR-1 POISON -				- - - - - -	-	RQ-454 K FP- °F RD-12/30/94 NOTES:
56-55-3 FORM- TOT. % OF CHEM. IN WASTE MATRIX	BENZ(a)ANTHRACENE	.0000 .0000	N	0.0000	PAH	- - - -		CODE - U018 CLASS - DW LDR-LDR- POISON -				- - - - - -	-	RQ-4.54 K FP- °F RD-1/26/95 NOTES:
67-64-1 FORM-L 19 TOT. % OF CHEM. IN WASTE MATRIX	ACETONE	.0000 .0000	N	0.0000		S-F003-DW - -DW	0.05ppm 0.59ppm	CODE - U002 CLASS - DW LDR-LDR-1 POISON -	I			- - - - - -	-	RQ-2270 K FP-0 °F RD-11/2/95 NOTES:0.79 G/ML
75-09-2 FORM-L TOT. % OF CHEM. IN WASTE MATRIX	DICHLOROMETHANE	.0000 .0000	D	.0000	HH	D-F001-DW S-F002-DW	0.20ppm 0.96ppm	CODE - U080 CLASS - DW LDR-LDR- POISON -				- - - - - -	-	RQ-454 K FP- °F RD-11/1/95 NOTES:1.33 G/ML DOT NAME: METHYLENE CHLORIDE

CURRENT DATE -- 2/18/97

HAS SYSTEM REPORT FOR REQUEST # BACKLOG

MATERIAL -- EQUIVALENT CONCENTRATIONS FOR HALOGENATED HYDROCARBONS, POLYAROMATIC HYDROCARBONS AND ORGANICS

ANALYSIS DATE - 12/20/96

CONTAINER -

WASTE PHYSICAL STATE - L

TC PHYSICAL STATE - L

pH -
FLASHPOINT -
DENSITY -DESIGNATOR - CLJ
WASTE WEIGHT -
WASTE STATUS -

K

CONSTITUENT LIST FOR ITEM #2-EC&HPERCENT

CAS# MSDS#/RCN	CHEMICAL NAME	WEIGHT PERCENT	TOX	EC %	PERS/ LDR	SOURCES		PRODUCT	40 CFR			TOXICITY CHARACTERISTIC		GENERAL INFORMATION
						Use-Code-cls	LDR (WW/OT)		D1	D2	D3	Code-DW conc. -	-LDR conc.	
78-93-3 FORM-L 19 TOT. % OF CHEM. IN WASTE MATRIX	METHYL ETHYL KETONE	.0000 .0000	D	.0000		S-F005-DW -DW	12.7ppm 0.96ppm	CODE - U159 CLASS - DW LDR-LDR-1 POISON -	I			D035-200 ppm - -200 ppm		RQ-2270 K FP-26 *F RD-9/20/94
83-32-9 FORM-16 TOT. % OF CHEM. IN WASTE MATRIX	ACENAPHTHENE	.0000 .0000	N	0.0000	PAH	- - - -		CODE - CLASS - LDR- - POISON -				- - - -	-	RQ-45.4 K FP- *F RD-3/28/95
85-01-8 FORM- TOT. % OF CHEM. IN WASTE MATRIX	PHENANTHRENE	.0001 .0001	N	0.0000	PAH	- - - -		CODE - CLASS - LDR- - POISON -				- - - -	-	RQ-2270 K FP- *F RD-1/26/95
86-73-7 FORM- TOT. % OF CHEM. IN WASTE MATRIX	FLUORENE	.0000 .0000	N	0.0000	PAH	- - - -		CODE - CLASS - LDR- - POISON -				- - - -	-	RQ-2270 K FP- *F RD-1/10/95
93-72-1 FORM-S TOT. % OF CHEM. IN WASTE MATRIX	2,4,5-TP SILVEX	.0000 .0000	D	.0000	HH LDR	O-F027-DW -DW	N/A NONE	CODE - CLASS - LDR- - POISON -				D017-1 ppm - -1 ppm		RQ-45.4 K FP-NONE *F RD-11/13/95
GCN001 FORM- TOT. % OF CHEM. IN WASTE MATRIX	REMAINDER NON- HAZARDOUS PER THE MANUFACTURER	100.0000 100.0000	N	0.0000		- - - -		CODE - CLASS - LDR- - POISON -				- - - -	-	RQ-NONE K FP- *F RD-10/24/91

HAS SYSTEM REPORT FOR REQUEST # BACKLOG

CURRENT DATE -- 2/18/97

MATERIAL -- EQUIVALENT CONCENTRATIONS FOR HALOGENATED HYDROCARBONS, POLYAROMATIC HYDROCARBONS AND ORGANICS

ANALYSIS DATE - 12/20/96 CONTAINER -

WASTE PHYSICAL STATE - L TC PHYSICAL STATE - L

pH -
 FLASHPOINT - °F
 DENSITY - g/cc

DESIGNATOR - CLJ
 WASTE WEIGHT -
 WASTE STATUS -

K

CONSTITUENT LIST FOR ITEM #2-EC&HHPERCENT

CAS# MSDS#/RGN	CHEMICAL NAME	WEIGHT PERCENT	TOX	EC %	PERS/ LDR	SOURCES Use-Code-cls LDR (WW/OT)	PRODUCT	40 CFR D1 D2 D3	TOXICITY CHARACTERISTIC Code-DW conc.- LDR conc.	GENERAL INFORMATION
CONSTITUENT SUMX 100.0083 WAC-173-303-101 Total ECX .00000 ECX ≥ 1% WT01-EHW 0.001% ≤ ECX < 1% WT02-DW No Data or ECX < 0.001% Non-Reg.						Flashpoint (FP) < 140°F IGNITABLE (I) OXIDIZER (O) If RCRA D001, see Note* WAC-173-303-090, 5 (Always LDR) D001-DW		TC Codes DW LDRs WAC 173-303-090, 8		
HH > 1.0%, WP01-EHW 0.01% ≤ HH ≤ 1.0%, WP02-DW PAH > 1.0%, WP03-EHW Non-regulated WAC-173-303-102 (LDR-Land Ban HH > 1000 ppm If Fed. Reg.) 40 CFR 268.32 (LDR-Land Ban CL ≥ 1000 ppm If Fed. Reg.)						pH ≤ 2 or pH ≥ 12.5 (Liquids LDR) D002-DW WAC-173-303-090, 6 (Solids Only) WSC2		WASTE SHIPPING SUMMARY DOT Reg. Is Waste RQ? TSCA Reg. RCRA Reg. State Reg.		
" " Exclude all State Waste Codes except W001 and WSC2 if " " " " Federal Waste Codes Apply " "						WAC-173-303-090, 7 (Always LDR) D003-DW				

DESIGNATION INFORMATION FOR ITEM # 2-EC&HHPERCENT OF REQUEST #BACKLOG

APPLICABLE WASTE CODES _____ WASTE CLASS _____ LDR CODES _____

PROPER SHIPPING NAME _____ HAZARD CLASS _____ DOT ID NO _____

LABELS _____ PACKAGING REQUIREMENTS _____ PG _____

SHIP TO _____ CELL (IF APPLICABLE) _____

* Reference 49 CFR 173.120, and 173.121 for DOT Proper Shipping Name and Packing Group
 z Halogenated Hydrocarbons (HH) not applicable per the testing method described in WAC 173-303-110

CL California List Halogenated Organic Compounds subject to LDR if concentration of CL compound ≥ 1000 ppm and RCRA hazardous waste



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

1315 W. 4th Avenue • Kennewick, Washington 99336-6018 • (509) 735-7581

February 12, 1997

Mr. Tom Teynor
U.S. Department of Energy
P.O. Box 550
Richland, WA 99352

Dear Mr. Teynor:

Re: Contained-In Determination for 828 Tank Farm Backlog Soil Drums

The Washington State Department of Ecology (Ecology) has completed its review of the analytical data submitted by the U.S. Department of Energy (USDOE) and its contractors. This data was submitted to support a "contained-in demonstration" for 828 backlog soil drums. The "contained-in" policy employs concentration levels for individual chemical constituents protective of human health through the direct ingestion pathway. This "contained-in demonstration" focused on delisting contaminated Tank Farm soils for waste codes F-001 through F-005.

In accordance with sampling plan *WHC-SD-WM-TP-440 REV.0*, seventy five soil samples were taken from the drum population for chemical and radioactive analysis. Six of those samples were collected as splits and sent to an offsite lab contracted by Ecology. The results were compared to Method B soil clean levels, as reported in *Model Toxics Control Act Cleanup Levels and Risk Calculations*, February 1996.

The results of that review indicate two samples were over the 50 parts per million (PPM) limit for polychlorinated biphenyl (PCBs) set by the *Toxics Substance Control Act* (TSCA). Four additional samples were collected and analyzed to confirm whether the levels of PCBs were actually above 50 PPM. It was concluded that some of the drummed soil will be regulated by TSCA. Currently, the state of Washington is not authorized to implement TSCA; however, consideration was given to PCBs to determine if the soils would designate as a "state only" dangerous waste under Washington Administrative Code 173-303-100. It was determined that neither the type of PCB (i.e., arochlor 1254 and 1260), nor concentrations found in the soils would require assigning any "state only" dangerous waste codes. This determination does not relieve USDOE of other regulations. Requirements under TSCA will have to be met prior to land disposal of the drums.

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DOE - RL / RMIC

197-AMW-147



Mr. Tom Teynor
February 12, 1997
Page 2

Considering the available information, Ecology is granting a "contained-in" for the 828 backlog soil drums (i.e., those drums specifically referenced in the sampling plan). De-listing of *waste codes F-001 through F-005 only* is allowable for the specified drums. Since this decision is case specific, it does not apply to any other similar containerized waste or non-containerized waste, on or off the Hanford Site.

If you have any questions or concerns, please contact me at (509) 736-3091 or Ted Wooley at (509) 736-3012.

Sincerely,



Ron Skinnarland
200 Area Section Manager
Nuclear Waste Program

TW:RS:sb

cc: Joe Waring, USDOE
Jim Golden, FDH
Jeff Westcott, RUST